CLAIMS

What is claimed is:

1 1. A method of selectively establishing a quality of service value for a network
2   device, comprising the steps of:
3   receiving application information that defines one or more traffic flows generated
4   by an application program, including information identifying one or more
5   points at which an application generates the traffic flows;
6   receiving device information that defines one of more quality of service treatments
7   that the network device may apply to data processed by the network
8   device;
9   based on the device information and the application information, determining one
10   or more processing policies that associate the traffic flows with the quality
11   of service treatments;
12   creating and storing one or more mappings of the application information to the
13   quality of service treatments that may be used to generate the quality of
14   service value when the application program generates traffic flows.

1 2. A method as recited in Claim 1, further comprising:
2   storing the mappings in a repository that is accessible by the application program;
3   converting the mappings into one or more settings of the network device;
4   enforcing one of the processing policies at the network device in response to
5   receiving traffic from the application program that matches the traffic flow
6   type.

1 3. A method as recited in Claim 1, further comprising:
2   creating and storing one or more classes that classify the traffic flows, each of the
3   classes comprising one or more types of traffic flows;
4   based on the device information and the classes of the traffic flows, determining
5   one or more processing policies that associate the traffic flows with the
6   quality of service treatments.

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1 4. A method as recited in Claim 1, wherein receiving application information
2   comprises receiving one or more application code points that represent traffic flow
3   types.

1 5. A method as recited in Claim 1, wherein receiving application information
2   comprises receiving one or more application code points that represent traffic flow
3   types.

1 6. A method as recited in Claim 1, wherein creating and storing one or more
2   mappings comprises creating and storing one or more policies, concerning
3   network processing of traffic flows generated by the application program, in the
4   repository.

1 7. A method as recited in Claim 1, wherein creating and storing one or more
2   mappings comprises creating and storing one or more policies, concerning
3   network processing of traffic flows generated by the application program, in a
4   policy store that is coupled to the repository.

1 8. A method as recited in Claim 1, wherein creating and storing one or more
2   mappings comprises creating and storing one or more policies, concerning
3   network processing of traffic flows generated by the application program, in a
4   directory.

1 9. A method as recited in Claim 1, wherein creating and storing one or more
2   mappings comprises creating and storing one or more policies, concerning
3   network processing of traffic flows generated by the application program, in a
4   policy server coupled to a Lightweight Directory Access Protocol directory that
5   comprises the repository.

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1   10.   A method as recited in Claim 1, wherein creating and storing one or more

2   mappings further comprises creating and storing, in the repository, one or more

3   mappings of Application Code Points of the application program to one or more

4   Differential Services Code Points of a protocol associated with the network

5   device.

1   11.   A method as recited in Claim 1, wherein creating and storing one or more

2   mappings further comprises generating one or more messages in RSVP+ () and

3   communicating the messages to the network device.

1   12.   A method as recited in Claim 1, wherein receiving application information

2   comprises receiving application information that defines one or more traffic flows

3   generated by an application program, including information identifying one or

4   more points at which an application generates the traffic flows, from a first

5   individual having responsibility for managing enterprise applications in the

6   network.

1   13.   A method as recited in Claim 1, wherein receiving device information comprises

2   receiving device information that defines one of more quality of service treatments

3   that the network device may apply to data processed by the network device, from a

4   second individual having responsibility for managing the network.

1   14.   A method as recited in Claim 1, wherein determining one or more processing

2   policies comprises creating and storing one or more policy statements in a

3   repository, wherein each policy statement associates a condition of one of the

4   traffic flows, an operator, an operand, and an action comprising one of the quality

5   of service treatments.

1   15.   A method as recited in Claim 1, wherein determining one or more processing

2   policies comprises creating and storing one or more policy statements in a

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3   repository, wherein each policy statement is represented by a plurality of nodes

4   that represent a condition of one of the traffic flows, an operator, an operand, and

5   an action comprising one of the quality of service treatments.

1   16.   A method as recited in Claim 1, wherein determining one or more processing

2   policies comprises creating and storing one or more policy statements in a

3   directory, wherein each policy statement is represented by a plurality of nodes that

4   represent a condition of one of the traffic flows, an operator, an operand, and an

5   action comprising one of the quality of service treatments, and wherein the

6   plurality of nodes is coupled to a root node having a distinguished name in the

7   directory.

1   17.   A method as recited in Claim 1, wherein each of the mappings comprises an

2   application code point value stored in associated with a differentiated services

3   code point value.

1   18.   A method as recited in Claim 2, wherein enforcing one of the processing policies

2   comprises:

3   requesting an operating system function to modify a packet of the traffic flows

4   using a policy element that requests a different operating system function

5   according to the operating system then in use;

6   at the network device, in response to receiving traffic from the application

7   program that matches the traffic flow type and in response to the operating

8   system function, modifying the packet to activate a quality of service

9   treatment of the network device.

19. A method of selectively establishing a quality of service value treatment for
network traffic passing through a device in a data network, according to an
application program that generates the network traffic, comprising the steps of:
receiving application information that defines one or more traffic flows generated
     by the application program, including one or more application codepoints
     at which an application generates the traffic flows;
receiving device information that defines one or more quality of service treatments
     that the network device is capable of applying to data processed by the
     network device;
based on the device information and the application information, determining one
     or more processing policies that associate the traffic flows with the quality
     of service treatments;
creating and storing one or more mappings of the application information to the
     quality of service treatments that may be used to generate the quality of
     service value when the application program generates traffic flows;
storing the mappings in a repository that is accessible by the application program;
converting the mappings into one or more messages to the network device that
     instruct the network device to apply Differentiated Services quality of
     service treatment in response to receiving traffic from the application
     program that matches the traffic flows.

20. A method of selectively establishing a quality of service value for a network
device, comprising the steps of:
receiving application information that defines one or more traffic flows generated
     by an application program, including information identifying one or more
     points at which an application generates the traffic flows;
receiving device QoS information that defines one of more quality of service
     treatments that the network device may apply to data processed by the
     network device;

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9 based on the device QoS information and the application information, determining

10 one or more processing policies that associate the traffic flows with the

11 quality of service treatments;

12 creating and storing one or more mappings of the application information to the

13 quality of service treatments that may be used to generate the quality of

14 service value when the application program generates traffic flows.

1 21. A computer-readable medium carrying one or more sequences of instructions

2 which, when executed by one or more processors, cause the one or more

3 processors to selectively establish a quality of service value for a network device,

4 by carrying out the steps of:

5 receiving application information that defines one or more traffic flows generated

6 by an application program, including information identifying one or more

7 points at which an application generates the traffic flows;

8 receiving device information that defines one of more quality of service treatments

9 that the network device may apply to data processed by the network

10 device;

11 based on the device information and the application information, determining one

12 or more processing policies that associate the traffic flows with the quality

13 of service treatments;

14 creating and storing one or more mappings of the application information to the

15 quality of service treatments that may be used to generate the quality of

16 service value when the application program generates traffic flows.

1 22. A computer-readable medium as recited in Claim 21, further comprising

2 instructions for carrying out the steps of:

3 storing the mappings in a repository that is accessible by the application program;

4 converting the mappings into one or more settings of the network device;

5 enforcing one of the processing policies at the network device in response to

6 receiving traffic from the application program that matches the traffic flow

7 type.

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1 23. A computer-readable medium as recited in Claim 21, further comprising
2   instructions for carrying out the steps of:
3   creating and storing one or more classes that classify the traffic flows, each of the
4   classes comprising one or more types of traffic flows;
5   based on the device information and the classes of the traffic flows, determining
6   one or more processing policies that associate the traffic flows with the
7   quality of service treatments.

1 24. A computer-readable medium as recited in Claim 21, further comprising
2   instructions for carrying out the steps of creating and storing one or more
3   mappings by creating and storing one or more policies, concerning network
4   processing of traffic flows generated by the application program, in the repository.

1 25. A computer-readable medium as recited in Claim 21, further comprising
2   instructions for carrying out the steps of creating and storing one or more
3   mappings by creating and storing one or more policies, concerning network
4   processing of traffic flows generated by the application program, in a policy server
5   coupled to a Lightweight Directory Access Protocol directory that comprises the
6   repository.

1 26. A computer-readable medium as recited in Claim 21, further comprising
2   instructions for carrying out the steps of creating and storing one or more
3   mappings by creating and storing, in the repository, one or more mappings of
4   Application Code Points of the application program to one or more Differential
5   Services Code Points of a protocol associated with the network device.

1 27. A computer-readable medium as recited in Claim 21, further comprising
2   instructions for carrying out the steps of determining one or more processing
3   policies by creating and storing one or more policy statements in a repository,
4   wherein each policy statement associates a condition of one of the traffic flows, an

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5   operator, an operand, and an action comprising one of the quality of service

6   treatments.

1   28.   A computer-readable medium as recited in Claim 1, further comprising

2   instructions for determining one or more processing policies by creating and

3   storing one or more policy statements in a directory, wherein each policy

4   statement is represented by a plurality of nodes that represent a condition of one of

5   the traffic flows, an operator, an operand, and an action comprising one of the

6   quality of service treatments, and wherein the plurality of nodes is coupled to a

7   root node having a distinguished name in the directory.

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